

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1 (Original) An antimicrobial polymeric compound having formula (1):



P comprises a polymer linked to X via a carboxyl group;
X comprises a group $-(R - V^{m+} - R^1 - R^2)^q (Y^p^-)$;
n is an integer of 1-1 x 10⁷;
R is independently selected from divalent hydrocarbon radicals;
V comprises a positively charged moiety;
m represents an integer;
R¹ is independently selected from divalent hydrocarbon radicals;
R² is independently selected from the group consisting of -H, -SH, -F, -Cl, -Br, -I, -OR³, -HN(O)CR⁴, or -O(O)CR⁵, wherein R³, R⁴ and R⁵ are independently selected from the group consisting of -H and monovalent hydrocarbon radicals;
Y represents an anion;
q represents m/p; and,
p represents an integer;
or a pharmaceutically acceptable derivative of a compound of formula (1).

Claim 2 (Original) A compound according to claim 1, wherein P is a carboxyl group-containing polysaccharide.

Claim 3 (Original) A compound according to claim 2, wherein the polysaccharide is selected from the group consisting of carboxyl group-containing celluloses, modified starches, chitosans, guar gums, glycans, galactans, glucans, xanthan gums, alginic acids, polymannuric acids, hyaluronic acids, polyglycosuronic and polyguluronic acids, mannans, dextrins, cyclodextrins and mixtures thereof, as well as other synthetically carboxylated or naturally occurring carboxylated polysaccharides, which may be linear or branched, preferably hyaluronic acid, gellan, xanthan, succinoglycan, pectin, chondroitine sulphate, heparan sulphate, dermatan, more preferably alginic acid and hyaluronic acid, particularly alginic acid.

Claim 4 (Original) A compound according to claim 1, wherein the polymer comprises a synthetic polymer obtainable by homo- or co-polymerisation of a monomer selected from the group consisting of (meth)acrylic acid, methyl (meth)acrylate, ethyl (meth)acrylate, n-propyl (meth)acrylate, isopropyl (meth)acrylate, n-butyl (meth)acrylate, isobutyl (meth)acrylate, tert-butyl (meth)acrylate, n-pentyl (meth)acrylate, n-hexyl (meth)acrylate, cyclohexyl (meth)acrylate, n-heptyl (meth)acrylate, n-octyl (meth)acrylate, 2-ethylhexyl (meth)acrylate, nonyl (meth)acrylate, decyl (meth)acrylate, dodecyl (meth)acrylate, phenyl (meth)acrylate, toluyl (meth)acrylate, benzyl (meth)acrylate, 2-methoxyethyl (meth)acrylate, 3-methoxybutyl (meth)acrylate, 2-hydroxyethyl (meth)acrylate, 2-hydroxypropyl (meth)acrylate, stearyl (meth)acrylate, glycidyl (meth)acrylate, 2-aminoethyl (meth)acrylate, (meth)acrylic acid-ethylene oxide adducts, trifluoromethylmethyl (meth)acrylate, 2-trifluoromethylmethylethyl (meth)acrylate, 2-

perfluoroethylmethylethyl (meth)acrylate, 2-perfluoroethyl-
2perfluorobutylethyl (meth)acrylate, 2-perfluoroethyl
(meth)acrylate, perfluoromethyl (meth)acrylate,
diperfluoromethylmethyl (meth)acrylate, 2-perfluoromethyl-2-
perfluoroethylmethyl (meth)acrylate, 2-perfluorohexylethyl
(meth)acrylate, 2-perfluorodecylethyl (meth)acrylate, 2-
perfluorohexadecylethyl (meth)acrylate and mixtures thereof.

Claim 5 (Original) A compound according to claim 1, wherein the polymer P comprises $10-1 \times 10^7$ monomeric units, more preferably $20-1 \times 10^6$, more preferably $30-1 \times 10^5$, more preferably $40-1 \times 10^4$ most preferably greater than 1000 monomeric units.

Claim 6 (Currently Amended) A The compound according to any preceding claim 1, wherein R² is -H.

Claim 7 (Currently Amended) A The compound according to any preceding claim 6, wherein R is selected from the group consisting of C₁₋₂₀ alkanediyl, C₂₋₂₀ alkenediyl, C₂₋₂₀ alkynediyl, C₃₋₃₀ cycloalkanediyl, C₃₋₃₀ cycloalkenediyl, C₅₋₃₀ cycloalkynediyl, C₇₋₃₀ aralkylenediyl, C₇₋₃₀ alkarylenediyl and C₅₋₃₀ arylenediyl, preferably selected from the group consisting of C₁₋₁₆ alkanediyl, C₂₋₁₆ alkenediyl, C₂₋₁₆ alkynediyl, C₄₋₂₀ cycloalkanediyl, C₄₋₂₀ cycloalkenediyl, C₅₋₂₀ cycloalkynediyl, C₇₋₂₀ aralkylenediyl, C₇₋₂₀ alkarylenediyl and C₆₋₂₀ arylenediyl, more preferably selected from the group consisting of straight chain C₁₋₁₆ alkanediyl, C₂₋₁₆ alkenediyl C₆₋₁₆ aralkylenediyl and C₆₋₁₆ alkarylenediyl, most preferably, R is selected from methylene, 1,2-ethylene, 1,2-propylene, 1,3-propylene, 1,2-butylene, 1,3-butylene, 1,4-butylene, 1,5-pentylene, 1,6-hexylene, 1,8-octylene, 1,10-decylene and 1,12-dodecylene.

Claim 8 (Currently Amended) A The compound according to any preceding claim 7, wherein substantially all groups R are the same.

Claim 9 (Currently Amended) A The compound according to any of claims 1 to 7 claim 7, wherein R represents a mixture of hydrocarbon chains.

Claim 10 (Currently Amended) A The compound according to any preceding claim 7, wherein R¹ is selected from the group consisting of C₁₋₃₀ alkanediyl, C₂₋₃₀ alkenediyl, C₂₋₃₀ alkynediyl, C₃₋₃₅ cycloalkanediyl, C₃₋₃₅ cycloalkenediyl, C₅₋₃₅ cycloalkynediyl, C₇₋₃₅ aralkylenediyl, C₇₋₃₅ alkarylenediyl and C₅₋₃₅ arylenediyl, preferably selected from the group consisting of C₁₋₁₈ alkanediyl, C₂₋₁₈ alkenediyl, C₂₋₁₈ alkynediyl, C₄₋₂₀ cycloalkanediyl, C₄₋₂₀ cycloalkenediyl, C₅₋₂₀ cycloalkynediyl, C₇₋₂₀ aralkylenediyl, C₇₋₂₀ alkarylenediyl and C₆₋₂₀ arylenediyl, more preferably selected from the group consisting of straight chain C₁₋₁₅ alkanediyl, C₂₋₁₅ alkenediyl, C₆₋₁₅ aralkylenediyl and C₆₋₁₅ alkarylenediyl, most preferably, R¹ is selected from 1,6-hexylene, 1,8-octylene, 1,10-decylene and 1,12-dodecylene.

Claim 11 (Currently Amended) A The compound according to any preceding claim 10, wherein R¹ comprises a mixture of hydrocarbon chains.

Claim 12 (Currently Amended) A compound according to claim 11, wherein at least some of the hydrocarbon chains R¹ in the mixture have 12-18 carbon atoms, preferably 12-16 carbon atoms, more preferably 12 or 16 carbon atoms.

Claim 13 (Currently Amended) A compound according to claim 11, wherein R^1 has greater than 10 carbon atoms in the chain, preferably R^1 comprises 12 or 16 carbon atoms.

Claim 14 (Currently Amended) A The compound according to any preceding claim 10, wherein m is 1, 2, 3, 4, 5 or 6, preferably 1, 2 or 3.

Claim 15 (Original) A compound according to claim 14, wherein m 1 or 2.

Claim 16 (Currently Amended) A The compound according to any of claims 1 to 13 claim 14, wherein p is 1, 2, 3, 4, 5 or 6, preferably 1, 2 or 3.

Claim 17 (Currently Amended) A The compound according to any preceding claim 16, wherein Y represents one or more anions that balance the charge of positively charged moiety V .

Claim 18 (Currently Amended) A The compound according to any preceding claim 17, wherein Y is selected from the group consisting of N-hydroxysuccinimidyl, N-hydroxybenzotriazolyl, nitrate, sulfate, bisulfate, phosphate (mono-, bi-, or triphosphate), carbonate, bicarbonate, acetate, tosylates, mesylates, brosylates, and halides including chloride, bromide, and iodide and mixtures thereof.

Claim 19 (Currently Amended) A The compound according to any preceding claim 18, wherein R^3 , R^4 and R^5 are independently selected from the group consisting of -H, C_{1-20} alkyl, C_{2-20} alkenyl, C_{2-20} alkynyl, C_{3-30} cycloalkyl, C_{3-30} cycloalkenyl, C_{4-30} cycloalkynyl, C_{7-30} aralkyl, C_{7-30} alkaryl and C_{5-30} aryl,

preferably R^3 , R^4 and R^5 are independently selected from the group consisting of -H, C_{1-15} alkyl, C_{2-15} alkenyl, C_{2-15} alkynyl, C_{3-20} cycloalkyl, C_{3-20} cycloalkenyl, C_{4-20} cycloalkynyl, C_{7-20} aralkyl, C_{7-20} alkaryl and C_{6-20} aryl, more preferably R^3 , R^4 and R^5 are independently selected from the group consisting of -H, straight chain C_{1-10} alkyl, C_{2-10} alkenyl and C_{6-12} aryl, most preferably, R^3 , R^4 and R^5 are independently selected from the group consisting of H, methyl, ethyl, propyl, butyl, hexyl, cyclohexyl, octyl, nonyl, dodecyl, eicosyl, norbornyl, adamantyl, vinyl, propenyl, cyclohexenyl, benzyl, phenylethyl, phenylpropyl, phenyl, tolyl, dimethylphenyl, trimethylphenyl, ethylphenyl, propylphenyl, biphenyl, naphthyl, methylnaphthyl, anthryl, phenanthryl, benzylphenyl, pyrenyl, acenaphthyl, phenalenyl, aceanthrylenyl, tetrahydronaphthyl, indanyl, biphenyl, particularly methyl, ethyl, propyl and isopropyl.

Claim 20 (Currently Amended) A The compound according to any preceding claim 19, wherein the polysaccharide, P, comprises $10-1 \times 10^5$ monosaccharide moieties, ~~more preferably $20-1 \times 10^4$, more preferably $30-1 \times 10^4$, more preferably $40-1 \times 10^4$ most preferably greater than 100 monosaccharide moieties.~~

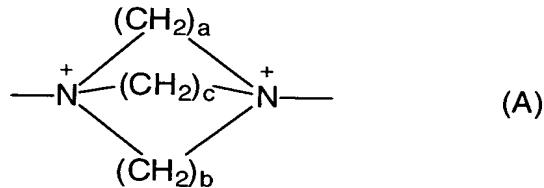
Claim 21 (Currently Amended) A The compound according to any preceding claim 20, wherein V comprises a positively charged moiety comprising one or two positively charged nitrogen atoms, one or two positively charged phosphorous atoms, one or two positively charged sulfur atoms, or mixtures thereof, ~~preferably nitrogen atoms~~.

Claim 22 (Currently Amended) A The compound according to any preceding claim 21, wherein V comprises a singly charged quaternary ammonium, quaternary phosphonium or sulfonium group,

having the formula $^+-NR_2^6-$, $^+-PR_2^7-$, or $^+-SR_2^8-$, respectively, wherein R^6 , R^7 and R^8 are independently selected from the group consisting of H and monovalent hydrocarbon radicals.

Claim 23 (Original) A compound according to claim 22, wherein R^6 , R^7 and R^8 are independently selected from the group consisting of -H, C_{1-20} alkyl, C_{2-20} alkenyl, C_{2-20} alkynyl, C_{3-30} cycloalkyl, C_{3-30} cycloalkenyl, C_{4-30} cycloalkynyl, C_{7-30} aralkyl, C_{7-30} alkaryl and C_{5-30} aryl, preferably R^6 , R^7 and R^8 are independently selected from the group consisting of -H, C_{1-15} alkyl, C_{2-15} alkenyl, C_{2-15} alkynyl, C_{3-20} cycloalkyl, C_{3-20} cycloalkenyl, C_{4-20} cycloalkynyl, C_{7-20} aralkyl, C_{7-20} alkaryl and C_{6-20} aryl, more preferably R^6 , R^7 and R^8 are independently selected from the group consisting of -H, straight chain C_{1-10} alkyl, C_{2-10} alkenyl and C_{6-12} aryl, most preferably, R^6 , R^7 and R^8 are independently selected from the group consisting of methyl, ethyl, propyl, butyl, hexyl, cyclohexyl, octyl, nonyl, dodecyl, eicosyl, norbornyl and adamantyl, vinyl, propenyl, cyclohexenyl, benzyl, phenylethyl, phenylpropyl, phenyl, tolyl, dimethylphenyl, trimethylphenyl, ethylphenyl, propylphenyl, biphenyl, naphthyl, methylnaphthyl, anthryl, phenanthryl, benzylphenyl, pyrenyl, acenaphthyl, phenalenyl, aceanthrylenyl, tetrahydronaphthyl, indanyl, biphenylyl, particularly methyl, ethyl, propyl and isopropyl.

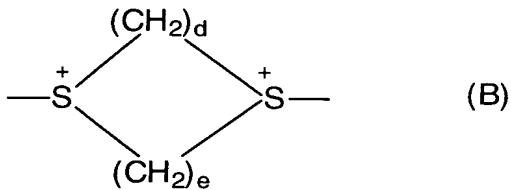
Claim 24 (Currently Amended) A The compound according to claim 22 ~~or claim 23~~, wherein V comprises two positively charged nitrogen atoms, preferably $-^+NR_2^6-R^9-NR_2^6^+-$ or a group (A):



wherein a, b and c independently represent 1-10, preferably, 1-5, more preferably 1-3, most preferably 2, and wherein R⁹ is selected from the group consisting of C₁₋₂₀ alkanediyl, C₂₋₂₀ alkenediyl, C₂₋₂₀ alkynediyl, C₃₋₃₀ cycloalkanediyl, C₃₋₃₀ cycloalkenediyl, C₅₋₃₀ cycloalkynediyl, C₇₋₃₀ aralkylenediyl, C₇₋₃₀ alkarylenediyl and C₅₋₃₀ arylenediyl, preferably R⁹ is selected from the group consisting of C₁₋₁₆ alkanediyl, C₂₋₁₆ alkenediyl, C₂₋₁₆ alkynediyl, C₄₋₂₀ cycloalkanediyl, C₄₋₂₀ cycloalkenediyl, C₅₋₂₀ cycloalkynediyl, C₇₋₂₀ aralkylenediyl, C₇₋₂₀ alkarylenediyl and C₆₋₂₀ arylenediyl, more preferably R⁹ is selected from the group consisting of straight chain C₁₋₁₆ alkanediyl, C₂₋₁₆ alkenediyl, C₆₋₁₆ aralkylenediyl and C₆₋₁₆ alkarylenediyl, most preferably, R⁹ is selected from methylene, 1,2-ethylene, 1,2-propylene, 1,3-propylene, 1,2-butylene, 1,3-butylene, 1,4-butylene, 1,5-pentylene, 1,6-hexylene, 1,8-octylene, 1,10-decylene and 1,12-dodecylene.

Claim 25 (Original) A The compound according to claim 24, wherein (A) is 1,4-diazoniabicyclo[2.2.2]octane.

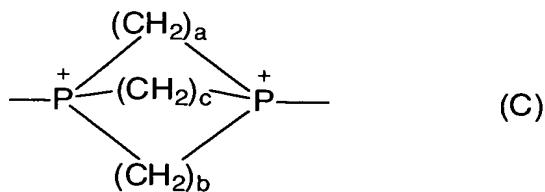
Claim 26 (Currently Amended) A The compound according to claim 22 ~~or claim 23~~, wherein v comprises two positively charged sulfur atoms, preferably -⁺SR⁸-R¹⁰-SR⁸⁺ or a group (B)



wherein d and e independently represent 1-10, preferably, 1-5, more preferably 1-3, most preferably 2, and wherein R¹⁰ is selected from the group consisting of C₁₋₂₀ alkanediyl, C₂₋₂₀ alkenediyl, C₂₋₂₀ alkynediyl, C₃₋₃₀ cycloalkanediyl, C₃₋₃₀ cycloalkenediyl, C₅₋₃₀ cycloalkynediyl, C₇₋₃₀ aralkylenediyl, C₇₋₃₀ alkarylenediyl and C₅₋₃₀ arylenediyl, preferably R¹⁰ is selected from the group consisting of C₁₋₁₆ alkanediyl, C₂₋₁₆ alkenediyl, C₂₋₁₆ alkynediyl, C₄₋₂₀ cycloalkanediyl, C₄₋₂₀ cycloalkenediyl, C₅₋₂₀ cycloalkynediyl, C₇₋₂₀ aralkylenediyl, C₇₋₂₀ alkarylenediyl and C₆₋₂₀ arylenediyl, more preferably R¹⁰ is selected from the group consisting of straight chain C₁₋₁₆ alkanediyl, C₂₋₁₆ alkenediyl, C₆₋₁₆ aralkylenediyl and C₆₋₁₆ alkarylenediyl, most preferably, R¹⁰ is selected from methylene, 1,2-ethylene, 1,2-propylene, 1,3-propylene, 1,2-butylene, 1,3-butylene, 1,4-butylene, 1,5-pentylene, 1,6-hexylene, 1,8-octylene, 1,10-decylene and 1,12-dodecylene.

Claim 27 (Original) A compound according to claim 26, wherein (B) is 1,4-dithioniumcyclohexane.

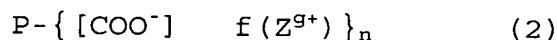
Claim 28 (Currently Amended) A The compound according to claim 22 ~~or claim 23~~, wherein V comprises two positively charged phosphorus atoms, preferably $-\text{PR}_2^7-\text{R}^9-\text{PR}_2^7-$ or a group (C)



wherein a, b and c independently represent 1-10, preferably, 1-5, more preferably 1-3, most preferably 2, and wherein R^{9'} is selected from the group consisting of C₁₋₂₀ alkanediyl, C₂₋₂₀ alkenediyl, C₂₋₂₀ alkynediyl, C₃₋₃₀ cycloalkanediyl, C₃₋₃₀ cycloalkenediyl, C₅₋₃₀ cycloalkynediyl, C₇₋₃₀ aralkylenediyl, C₇₋₃₀ alkarylenediyl and C₅₋₃₀ arylenediyl, preferably R^{9'} is selected from the group consisting of C₁₋₁₆ alkanediyl, C₂₋₁₆ alkenediyl, C₂₋₁₆ alkynediyl, C₄₋₂₀ cycloalkanediyl, C₄₋₂₀ cycloalkenediyl, C₅₋₂₀ cycloalkynediyl, C₇₋₂₀ aralkylenediyl, C₇₋₂₀ alkarylenediyl and C₆₋₂₀ arylenediyl, more preferably R^{9'} is selected from the group consisting of straight chain C₁₋₁₆ alkanediyl, C₂₋₁₆ alkenediyl, C₆₋₁₆ aralkylenediyl and C₆₋₁₆ alkarylenediyl, most preferably, R^{9'} is selected from methylene, 1,2-ethylene, 1,2-propylene, 1,3-propylene, 1,2-butylene, 1,3-butylene, 1,4-butylene, 1,5-pentylene, 1,6-hexylene, 1,8-octylene, 1,10-decylene and 1,12-dodecylene.

Claim 29 (Original) A compound according to claim 28, wherein (C) is 1,4-diphosphoniabicyclo[2.2.2]octane.

Claim 30 (Original) A process for the preparation of a compound having formula (1), comprising reacting a compound having the formula (2):



wherein:

P is as defined in any preceding claim;

n is as defined in any preceding claim;

Z is a cation;

f represents 1/g; and

g represents 1, 2, 3, 4, 5 or 6;

with a group having the formula (3)

L-X (3)

wherein X is as defined in any preceding claim; and,
L is a leaving group.

Claim 31 (Original) A process according to claim 30 wherein L is selected from the group consisting of N-hydroxysuccinimide, N-hydroxybenzotriazole, nitrate, sulfate, bisulfate, phosphate (mono-, bi-, or triphosphate), carbonate, bicarbonate, acetate, tosylates, mesylates, brosylates, and halides including chloride, bromide, and iodide, preferably tosylate.

Claim 32 (Cancelled)

Claim 33 (Cancelled)

Claim 34 (Cancelled)

Claim 35 (Cancelled)

Claim 36 (Cancelled)

Claim 37 (Cancelled)

Claim 38 (Cancelled)

Claim 39 (Cancelled)